Vertical Drain (No.)

Definition

A well, pipe, pit, or bore in porous, underground strata into which drainage water can be discharged.

Purpose

To provide an outlet for drainage water from a surface or subsurface drainage system.

Conditions where practice applies

This practice is applicable in locations where the underlying strata can receive, transmit, or store the design drainage flow and other drainage outlets are not available and cannot be provided at a reasonable cost. The practice is applicable only in locations where a determination has been made that it is not contrary to state laws or regulations, and that it will not cause pollution of underground waters.

Design criteria

The number and size of vertical drains shall be adequate to discharge the design drainage flow into the underlying stratum or strata. The number, size, and location of the drains shall be based on a field determination of the depth, permeability, porosity, thickness, and extent of the strata.

The minimum diameter of shallow uncased wells shall be 24 in. and of deep cased wells, 4 in.

A suitable filter system, desilting basin, or other means for removing sediment from the water before it enters the well shall be provided.

Well casings shall be of adequate strength and longevity to serve planned needs.

Plans and specifications

Plans and specifications for installing vertical drains shall be in keeping with this standard, and shall describe the requirements for properly installing the practice to achieve its intended purpose.

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Planning considerations for water quantity and quality

Quantity

1. Effect on aquifer recharge.
2. Effect on the water table.
3. The effect on the volume of downstream flow to downstream users and uses.

Quality

1. The potential hazard to ground water quality from the discharge of drainage water containing dissolved substances.
2. The potential for land use changes that may impair aquifer quality.